From plate to picture: The role of gastronomic offerings in tourism marketing

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ABSTRACT

Gastronomic offerings are key components of travel and destinations. However, scant research has focused on how gastronomic offerings are projected to tourists. Using signaling theory as a framework, this study investigated the presence of gastronomic offerings in 25,231 promotional photos to assess how the pictures represented the food offerings at resorts in five countries. Data were gathered from the brochures published by two leading tour operators in the European market, "TUI" and "Thomas Cook." The results of content analysis showed that gastronomic offerings were often secondary to cultural and natural assets in brochures. In addition, the number of photos with representation of gastronomy elements increased between 2005 and 2020. Findings also revealed that functional (in a working context) and passive (people eating and drinking) food photos were predominant. Implications for academics and practitioners are discussed.

1. Introduction

Gastronomy offerings have become a key topic in hospitality and tourism (Chang & Mak, 2018). Destinations and hotels are expanding their culinary products and services to attract more tourists with higher expenditures (Okumus et al., 2018). Experiencing foods of different cultures while traveling is becoming increasingly prevalent, and the term food or culinary tourism has been used to describe this phenomenon of how food and tourism are related (Ellis et al., 2018). The search by tourists for authenticity and cultural differences (both at the company and destination level) is fostering the promotion of gastronomy through photographs. Pictures of dishes, culinary experiences, and local culture are a new normal to promote gastronomy both online (e.g., Instagram) and in traditional media (e.g., brochures) by different destinations (Chang & Mak, 2018). However, gastronomy visual representations sometimes struggle to properly communicate authenticity in the culinary dishes (Yang et al., 2020).

Gastronomy or culinary offerings in tourism are complex constructs, embedding several dimensions such as customer service, products, dishes, authentic offerings from the local culture, and physical facilities (Lee et al., 2018). However, the importance and weight of using photos to promote food offerings at destinations and hotels remain

underexplored as there is a paucity of studies exploring this (Chang & Mak, 2018). Moreover, how the different gastronomy dimensions are projected in photos is a topic that has not been properly addressed in the literature (Chang & Mak, 2018; Galvez et al., 2017). Digital transformation of many promotional materials is increasing the importance of visual and pictorial representation of gastronomy, demanding a further understanding of its projected image on tourists and the role that it can play in destination selection.

Existing studies have investigated the effects of food image on travel intention. For example, cognitive food images (i.e., quality & safety, attractiveness, cooking methods, culinary cultural reflection) can drive tourists' desire to buy and eat the food at a tourist destination (Zhang et al., 2022). Seo et al. (2014) suggested that cognitive food images can also drive tourists' affective perception, which also subsequently will impact their intention to eat the food. Chatterjee and Suklabaidya (2021) found that a city's food image can be used to predict the likelihood of tourists visiting the destination (Moreno-Gil & Martín-Santana, 2015). Studies on tourism literature have proved the influence of visual cues such as photographs on tourists' emotional, cognitive, and behavioral reactions (Lourenção et al., 2020). However, these studies examined food image (i.e., cognitive food image) as a set of intangible attributes of local food (Lai et al., 2020) instead of examining it as a

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visual representation.

Previous studies have highlighted the impact of visual content, such as destination images and quality and source of photographs, on tourists' perception of a destination and their subsequent travel decision making (e.g., Zhu et al., 2023). However, the influence of gastronomy photos as a visual representation of a destination's culinary offerings remains an understudied area. Examination of the image projected of gastronomy through photographs used in marketing materials can enable managers to identify opportunities to create competitive advantages (Galvez et al., 2017). The role that food and culinary offerings play in attracting people to a destination is important to assess as resources spent in promotion could help provide an advantage for the destination (Chatterjee & Suklabaidya, 2021; Zhang et al., 2022).

The overall purpose of the current study was to create a baseline index for understanding the visual representation of culinary offerings of a destination to determine the impact it may have on signaling consumers. To achieve this purpose, three goals were set: 1) examine the presence and weight of gastronomy offerings in the projected image of destinations and lodging through photos; 2) examine the differences between image categories when gastronomy offerings are present and when they are absent; and 3) propose guidelines to improve the presence of the gastronomy offerings in the promotional pictures to help organizations and destinations create a competitive advantage. The study offers a comprehensive understanding of the portrayal of gastronomy offerings in hotel and destination promotional photographs and offers guidelines for the future.

2. Literature review

2.1. Theoretical underpinning

Signaling theory suggests that organizations use signals to convey information about a product or service to others, aiming to communicate and influence their perceptions, attitudes, and subsequent behaviors (Spence, 2002). In the current study context, gastronomy photos can be seen as strategic communication tools that inform tourists and influence their desirability for a destination's culinary offerings. These images serve as visual cues to provide a glimpse into the gastronomic sensory experiences and cultural richness of a destination (Andersson et al., 2017). Moreover, the significance of food photos can also act as social cues, informing tourists of the social norms of a destination and motivating tourists to choose destinations that align with their values (Ellis et al., 2018; Smith & Costello, 2009). While signaling theory underscores the significance of visually portraying gastronomic offerings, this study aids in its implementation by introducing a robust and practical index for comparing destinations' performance.

Assessing the signal involves evaluating the set of attributes a product or service can provide. Applying signaling theory, Van Der Heide et al. (2013) found that photographs provide more warranting value of an online product to potential buyers and inform their purchasing behaviors. Examining visual representations of food images from a destination can also serve as an authentic cue that can drive tourists' behaviors. Thus, developing an understanding of the attributes or the "cues" (i.e., visual representation of culinary offerings) is critical.

In tourism marketing, particularly in the promotion of gastronomy within destinations, visual signals serve as essential communicative elements that shape the projected image of place-based food experiences. These signals are not homogeneous (Xiao et al., 2022), rather, they can be categorized into five analytical dimensions: Source, Features, Context, Behavior, and Impact. The Source dimension refers to who created or commissioned the image, whether user-generated, firm-created, trader-supplied, or AI-produced, as the originator of a visual strongly influences its perceived credibility, authenticity, and communicative intent (Költringer & Dickinger, 2015; Zhao & Agyeiwaah, 2024). The Features dimension encompasses the technical and compositional properties of images, including resolution, saturation, color palette, and the depiction of key gastronomic elements such as food, people, or dining spaces (Picazo et al., 2019; Zhan et al., 2024). Context relates to the circumstances under which the image is encountered, including its temporal phase in the travel journey (e.g., inspiration vs. purchase), medium of dissemination (digital vs. print), and its integration with accompanying textual content. The Behavior dimension involves the interactive responses elicited from viewers, such as clicks, shares, or saves, which provide insight into engagement with visual content (Konijn et al., 2016). Finally, the Impact of visual signals is increasingly explored through neuromarketing techniques, including eye tracking and facial coding, which allow for the measurement of visual attention, cognitive processing, and arousal (Li et al., 2024; Schoner-Schatz et al., 2021). This multidimensional framework enables a more nuanced understanding of how visual cues operate in tourism marketing. Among these elements, recent image analytics research highlights that semantic content—such as food, people, and settings—plays a dominant role in shaping user perception and behavioural responses (Zhan et al., 2024).

Given the intangible and experiential nature of tourism products, visual content serves a critical role in reducing uncertainty and shaping expectations (K. S. Lee, 2023). In gastronomic tourism, food photographs are not neutral; they are curated communicative tools that project anticipated experiences. From a signaling perspective, they convey quality, authenticity, and cultural value (Lin et al., 2020; Savelli et al., 2022).

2.2. Role and impact of food in tourism

Food is one of the crucial elements of tourism as it can provide authentic, unique, and educational experiences to tourists (Smith & Costello, 2009). It adds value to the tourism industry by providing tourists with memorable experiences (Hjalager & G. W. Richards, 2002) and sustenance during their travels. It also enables residents to offer tourists a sense of local pride and authenticity of a local destination, therefore building a connection between tourists and residents (World Food Travel Association, 2020).

There are many factors that explain why food-related activities in tourism have become more popular. One main reason is that food tourism engages a broad range of tourists in multiple senses and actions (Andersson et al., 2017). It also engages return visitors with both old and new experiences in a way that a sight-seeing type of tourism experience cannot match. The following sections will expand the discussion on the important role of food in tourism and its development, including food tourism as a product itself, food as a motivation for traveling, and food as a marketing tool.

2.3. Food tourism as a product

Food tourism is defined as "the act of traveling for a taste of place to get a sense of place" (World Food Travel Association. 2020, p.4). Food tourism is essentially about a culture where food functions as a medium between tourists and places (Yang et al., 2020). Food tourism can benefit a destination by increasing tourists' spending and extending tourist seasons beyond the traditional timeframes (Everett & Aitchison, 2008). Rural areas can use food tourism as a development strategy as it offers a wide range of meanings (e.g., reconnection with nature, resilience to globalization, celebrating local food production) that cater to various types of rural tourists (Everett & Aitchison, 2008). Tourists' increased level of interest in experiential value in food tourism is also valuable to retain and develop destination identity through food images (Everett & Aitchison, 2008; Tsai & Wang, 2017).

With the increasing interest in food tourism, there are challenges and threats. One of the main negative impacts of food tourism development is the globalization of local experiences, in which similar food-related activities may be seen in other places (World Food Travel Association, 2020). However, Mak et al. (2012) have suggested that globalization

may present opportunities for the reinvention of local food offerings by directly affecting culinary supplies and indirectly influencing local food culture and identities. Hall and Mitchell (2003) had a similar view that food tourism is an instrument of globalization and helps with global goods and products; however, it also boosts and rejuvenates local food traditions and creates new ones, such as fusion cooking that represents the development of new local food production. The comparison between destinations can be helpful to tackle how food production and gastronomy is considered when viewing different promotional content and materials and can help distinguish one destination from another competitively.

2.4. Food as a motivation for travel

Although eating activities in traveling are sometimes taken for granted as we often view them as necessities instead of leisure activities, food does help structure tourists' days, in which tourists' experiences are planned around what and where to eat or drink (G. W. Richards, 2002). Food characterizes places and identities and acts as one of the resources in motivating tourists to travel to certain places (Ellis et al., 2018; Everett, 2009; Smith & Costello, 2009). Some argue that food is becoming a strong pull factor for destinations in motivating tourists (Smith & Costello, 2009). In the food tourism context, push motivation factors refer to the internal motivation such as the taste of food, socialization, or escape; pull motivation factors refer to the appealing features from those tourism destinations that 'pull' tourists towards them (Su et al., 2020). Whether food functions as a primary tourist experience or supporting experience often depends on the specific circumstances (Quan & Wang, 2004). In any case, digital communication of food in destination marketing and promotional tools is critical in matching both push and pull motivational factors.

Everett (2009) found that food provides tourists a sense of "smellscape" and/or "tastescape," where a place is enjoyed by smell and/or taste. By undertaking multisensory activities, tourists can feel that they truly have experienced the place. This type of experience is especially important to tourists who identify themselves as food enthusiasts, because it provides recurring confirmation of who they are through various food-related activities and offers a way to communicate that identity to others (Andersson & Mossberg, 2017) and reinforce their self-image (Beerli et al., 2007). Therefore, food becomes a strong motivation for food enthusiasts to travel. Even though these food enthusiasts are only a portion of all tourists, they do spend more money on very high-quality products (World Tourism Organization, 2017). For tourists who do not base their identities on food, often referred to as generic tourists, they still have the need to look for food experiences during traveling (Andersson & Mossberg, 2017).

Previous studies have identified various factors that motivate tourists to consume local food or engage in food destination traveling or activities. Some of these factors are the taste of food, socialization, and cultural experiences; whereas other factors such as interpersonal relationships (e.g., Kim & Eves, 2012), novelty (e.g., Chang et al., 2010), sensory appeal (e.g., Kim & Eves, 2012), and service quality (e.g., Jiménez-Beltrán et al., 2016), were also identified in previous research as relating to the motivational role of food in tourism. Thus, to truly understand how to connect with the push and pull motivational factors, destinations (including hotels and resorts) must understand the digital image they project in their promotions and the role played by the subjects depicted, their role (active or passive), and the contextualization (location) of these promotional materials.

2.5. Food as marketing tool in tourism

Food is often used as a marketing tool to promote destination images as well as project local heritage (G. W. Richards, 2002; World Food Travel Association, 2020). Essentially, even though food culture is an intangible heritage resource, food itself is produced and consumed within geographic locations (Ellis et al., 2018). Through local food, tourists are able to experience various gastronomic products that are associated with cultural and other resources from a specific destination (Corigliano, 2002).

Strategically using food as a marketing tool to promote destinations and create a "proud of local food" feel is essential for tourism destinations (Du Rand et al., 2003). It is also important to provide quality food-related experiences that satisfy tourists' needs and values, such as authenticity of local culture and sense of place (McKercher et al., 2008; G. W. Richards, 2002). Failures in offering authenticity through local foods and experiences present a barrier in building attractive food images for destinations (Hillel et al., 2013). Tourists nowadays go beyond consuming food and start engaging in creating and producing food experiences by learning how to use local ingredients and how to cook (Richards & Raymond, 2000). These activities provide opportunities to use food to connect tourists with local traditions to create authentic experiences (G. W. Richards, 2002). These hands-on co-creation activities can also simulate tourists' attachment and loyalty to a destination therefore driving repeat intention (Shulga et al., 2018). Other positive outcomes, such as intention to recommend local food or return intention for food tourism activities, were found to be influenced by the food destination image, which is shaped by attitude toward local food and tourists' consumption value (Choe & Kim, 2018). The more tourists are involved in personalization and culture exchange in co-creation during food activities, the more satisfied tourists are (Shulga et al., 2018). Thus, it is very important to properly understand and manage which subjects (tourists, locals) are portrayed in the pictures and their roles, as well as understanding the role of food in the promotional materials to ensure the most effective marketing tools are used.

2.6. Destination image and the role of gastronomy promotional photographs

The concept of destination image refers to the perceptions, beliefs, and attitudes that individuals hold about a particular location (Pike, 2004). Previous studies suggested that food-related images, particularly those that highlight local ingredients, cooking methods, and traditional dishes, can significantly enhance a destination's appeal (Boyne et al., 2003; Okumus et al., 2007). Such culinary offerings serve as a symbolic representation of a destination's culture and uniqueness, setting it apart from competing locations. In their study of culinary images in tourism brochures, Cohen and Avieli (2004) found that food images can be powerful in attracting tourists, especially when they reflect authenticity and local traditions. Furthermore, food photography in marketing materials is used not only to showcase the gastronomic offerings but also to signal the overall quality and cultural depth of the destination (Getz et al., 2014).

While the literature underscores the importance of food and gastronomy in shaping destination image, several challenges exist in this area of research. One key issue is the difficulty in measuring the impact of food on destination image due to the intangible and experiential nature of gastronomy. As a result, it is challenging to develop standardized methods to assess the role of food in shaping perceptions. The first step in this process is to develop a methodology that assesses how gastronomy is being portrayed by destinations and apply an index to measure the projected image of gastronomy. In addition, the rise of social media platforms has amplified the visibility of food in tourism, but its influence is not fully understood. Researchers must address how digital platforms and user-generated content contribute to the broader narrative of food and tourism.

Recent literature has seen the popularity of interdisciplinary research using more advanced methods such as machine learning and deep learning. Research shows that images contain a set of fixed broad features: Color-centric cues, textual characteristics, composition, semantic content, and spatial and temporal information (Zhan et al., 2024). The existing cognitive-based conceptualization of gastronomic

images should be extended by considering affective and conative images. Cognitive image is traditionally conceptualized as the perceptions of food and dining ambiance, including food quality, food and cuisine culture, food and people, food activities, dining places/restaurants, and the environment (Chen et al., 2023). Recent research has proposed preliminary frameworks for comprehensively analyzing the image of tourist destinations and for targeted tourism planning using deep learning techniques to perceive images conserving image scene and visual aesthetics (Wang et al., 2024).

3. Methodology

3.1. Research method

For the purposes of this study, images of tourist promotional or marketing packages were examined based on how the tour operators exert on the formation of induced image (Frías et al., 2008; Albert da Silva et al., 2018), as well as the credibility associated with these promotional materials (Sirakaya & Sonmez, 2000; Picazo & Moreno-Gil, 2018). Data were gathered from brochures published by two of the world's leading international leisure travel groups in the European market, TUI and Thomas Cook (Alegre & Sard, 2015; FVW, 2019). Tourism brochures targeted at the German market (Schöne Ferien by TUI and Neckermann Reisen by Thomas Cook) were used to elicit images and was also chosen for the study since Germany is third world's largest tourism spender and Europe's top source market (World Tourism Organization, 2021). The German market also has a strong presence and importance associated with tourism industry intermediaries in the country, which have the best performance in Europe and most remarkable horizontal and vertical integration in the industry (Novelli & Hellwig, 2011; Picazo et al., 2019). Particularly, in 2022, 44 % of German tourists booked the components of their trips together through tour operators or travel agencies (DRV, 2023).

3.2. Sampling method

A longitudinal research approach was undertaken over 11 seasons from summer 2005 to winter 2019/2020. Images collected from the brochures cover 5911 lodging properties located in 5 countries (Spain, Turkey, Egypt, Malta, and Cyprus). These destinations were chosen due to the relevance of the Mediterranean gastronomy, which global character, tradition and culture is a model of lifestyle and has become one of the most relevant tourist attractions (Vidal-González et al., 2022). In Addition, they are the most popular sun and beach destination in Europe and represent the majority of packages offered by each tour operator (Picazo & Moreno-Gil, 2018). These destinations represent both the generic gastronomy of popular sun and beach destinations and the cultural identity from different countries and backgrounds, enabling a representative analysis of the portrayed gastronomy offering (Lin et al., 2021). The timeframe chosen for this study is based on both academic rationale and logistical considerations. A substantial period—15 years in this case—was necessary to conduct the analysis, ensuring that digital brochures from tour operators were available for review. Additionally, the COVID-19 period and post-covid period were excluded to avoid biasing the results, as the objective was to validate the methodology and index while producing generalizable findings. Notably, brochures for the year 2020 were released in 2019, prior to the onset of the pandemic. In total, 25,231 photographs were gathered based on the geographical distribution of lodging properties.

3.3. Data analysis method

Once the data were selected for the study, content analysis was conducted to identify the presence of culinary offerings in pictures, quantifying the visual representation and categorizing the images. In addition, the differences between the content of the photographs that involve gastronomy content, and the rest of the sample were analyzed. Content analysis is considered one of the most effective methodologies in analyzing qualitative data (Krippendorff, 2019; Van Leeuwen & Jewitt, 2001) and the most popular technique used to analyze pictures in hospitality literature (Deng & Liu, 2021; Picazo & Moreno-Gil, 2017).

Following the methodology developed by Picazo et al. (2019), the classification was carried out in three steps: a) preliminary codification of each photograph, b) encoding of the content, and c) crosscheck validation. First, the photographs were numbered and encoded based on the tour operator, brochure, destination, type of accommodation, and season, thus creating a database with the specific content depicted. Second, each of the 25,231 photographs was classified based on a) subjects depicted (number of people, gender, typology, life cycle, travel group); b) type of activity undertaken by subjects (active or passive activities and actions); and c) contextualization of the scene (establishment, accommodation unit, F&B facilities, complementary services, and destination). See annex I with the example of one picture categorized. Finally, with the aim to ensure transparency in data and trustworthiness within the present study (Pearce et al., 2015), a crosscheck validation of the reliability of encoders was carried out by comparing the results of three different encoders for a sample of 500 pictures, which yielded a consistency level (level of agreement) of 94.8 % for the analysis.

3.4. Projected Image Index (PII)

After the data classification, the Projected Image Index (PII) (Picazo et al., 2019) was calculated for each dimension. The development and application of synthetic indices in the analysis of social and economic phenomena have taken on great relevance and popularity among academics and professionals. PII is a useful, innovative, and flexible tool that allows the comparison between destinations, the evaluation of the image alignment with the positioning planned, and the measurement of the congruency between projected and perceived image related to those people present in the photographs, activities undertaken and contextualization of visual representations. The first step consists of defining the indicators of the components of the projected image. Following this, maximum and minimum values were identified from the number of images (frequency) of each category (for example, active images) based on the destination with the highest and the lowest number of images in that category. The absolute value indicates the number of images (frequency) related to the category. Minimum and maximum values are set to transform the frequencies (number of photographs) into comparable indices on a scale of 0–1, according to how the difference between the maximum and minimum is defined. The leader in each category will be assigned a score of 1, while a score of 0 will be given to the destination or accommodation with the lowest representation in the category analyzed. Thus, the index of the projected image component for a specific destination is defined as follows:

$$Component\ Index\ (PII) = \frac{absolute\ value - minimum\ value}{maximum\ value - minimum\ value}$$

4. Results

The results of the study showed how people, activities, and locations are related to gastronomy in the projected image for destinations and accommodation in promotional photos. Tables 1 and 2 show the distribution of the number of photographs analyzed by destination and the weight of gastronomy in the projected image. Despite the significant rise of interest in food tourism and gastronomy, content in the pictures used to promote lodging show a small number of hotel pictures that include F&B (13.6 %) and destination pictures that include culinary content (4.6 %).

In destination promotion, each destination is preceded by a general introduction, followed by the listed accommodation offering. Among all five countries, Turkey has the largest number of culinary images on the

Table 1
Sample distribution.

	Image	Cyprus	Egypt	Spain	Malta	Turkey	Total	Var. 2005–2020
Accommodations	Total	1473	2643	13,306	764	5652	23,838	4,17 %
	Gastronomy	197	311	2079	110	566	3263	33,64 %
Destinations	Total	142	215	818	46	172	1393	−74,05 %
	Gastronomy	12	8	19	4	22	65	−92,86 %
Total	Total	1615	2.858	14,124	810	5824	25,231	−0,32 %
	Gastronomy	209	319	2098	114	588	3328	31,34 %

Table 2
Weight of gastronomy in the projected image of destinations and lodging.

Item		Cyprus	Egypt	Spain	Malta	Turkey	Total	Var. 2005–2020
Destinations Gastronomy	PII	8,45 %	3,72 %	2,32 %	8,70 %	12,79 %	5 %	−72,5 %
	Index	0,59	0,13	0,00	0,61	1,00	0,22	0,18 vs 0,18
Accommodations F&B	PII	13,37 %	11,77 %	15,62 %	14,40 %	10,01 %	13,69 %	28,3 %
	Index	0,60	0,31	1,00	0,78	0,00	0,65	0,72 vs 0,26

pages that introduce the destination, representing 12.7 % of the total photos. However, Spain and Malta have the highest number of gastronomy images in the promotion of their accommodations, representing 15.6 % and 14.4 % of their sample. Table 2 shows that within the 15 years period, there have been no changes in the gastronomy image projected by destinations, with Turkey having the highest percentage of images with gastronomy offerings. In contrast, the accommodation pictures that involve gastronomy offerings were more distributed within countries in 2005, but in 2020 it turns to a more concentrated distribution around Cyprus and Malta.

When comparing the importance of gastronomy in terms of tourists' expenditure at the destinations, the presence of gastronomy offerings seems to be underweighted. Regarding the comparison of gastronomy with other cultural and natural destination assets, gastronomy is clearly projected as a secondary cultural element, besides its importance in communicating the sense of place. Turkey is clearly projecting a gastronomy image (PII = 1) compared to the other four destinations. The accommodation industry shows a more homogenous distribution in the projection of the gastronomy image, and Spain is leading the category with the highest index (PII = 1), and Turkey showing the lowest index (PII = 0).

Regarding the second goal of the study and how lodging categorizes their gastronomic pictorial content, the results showed significant content differences among the pictures that include gastronomic offerings and those that do not. Findings indicated that human presence was portrayed in less than half of the gastronomy pictures analyzed. Results also confirm a significant increase in the number of pictures without human presence between 2005 and 2020, being projected as mere representations of gastronomy elements. These suggest that social interaction in the gastronomic experience has received less attention than expected. Nevertheless, in relation to the relevance of the subject in the image portrayed by lodgings, the subject has played a primary role in 82.3 % of the images with people involved (see Table 3). This indicated that the portrayal of the gastronomy experience through photographs continues to play a secondary role, focusing primarily on the physical aspects—such as food, beverages, and facilities—while overlooking the broader potential of gastronomy to convey other service cues and enhance the memorability of specific gastronomic interactions.

In terms of gender, there is a limited number of gastronomy images that include only women or only men. Particularly, the findings indicate that 75.3 % of the pictures show women and men interacting together. Moreover, the number of photographs that include only men in the scene is higher than those that include only women (15 % vs. 9.6 %). These results differed substantially from previous studies, in which women are shown more frequently than men (Sirakaya & Sonmez, 2000; Picazo et al., 2019).

Table 3
Subjects depicted by lodgings.

Item		Cyprus	Egypt	Spain	Malta	Turkey	Total	Var 2005–2020
Presence	%	30,46 %	57,56 %	45,17 %	25,45 %	39,05 %	43,73 %	−85,08 %
	Index	0,16	1,00	0,61	0,00	0,42	0,57	0,57 vs 0,54
Absence	%	69,54 %	42,44 %	54,83 %	74,55 %	60,95 %	56,27 %	644,86 %
	Index	0,84	0,00	0,39	1,00	0,58	0,43	0, 43 vs 0,46
Primary	%	83,33 %	87,15 %	83,60 %	89,29 %	71,95 %	82,34 %	−51,75 %
	Index	0,66	0,88	0,67	1,00	0,00	0,60	0,51 vs 0,63
Secondary	%	16,67 %	12,85 %	16,40 %	10,71 %	28,05 %	17,66 %	354,30 %
	Index	0,34	0,12	0,33	0,00	1,00	0,40	0,49 vs 0,37
Male	%	22,00 %	15,38 %	15,80 %	4,00 %	10,69 %	15,06 %	36,30 %
	Index	1,00	0,63	0,66	0,00	0,37	0,61	0,76 vs 0,86
Female	%	22,00 %	3,85 %	9,04 %	12,00 %	13,84 %	9,62 %	148,52 %
	Index	1,00	0,00	0,29	0,45	0,55	0,32	0,30 vs 0,59
Both	%	56,00 %	80,77 %	75,16 %	84,00 %	75,47 %	75,32 %	−18,01 %
	Index	0,00	0,88	0,68	1,00	0,70	0,69	0,79 vs 0,93
Couple	%	36,00 %	51,28 %	52,99 %	68,00 %	52,20 %	52,26 %	−53,19 %
	Index	0,00	0,48	0,53	1,00	0,51	0,51	0,52 vs 0,57
Family	%	4,00 %	7,69 %	9,04 %	8,00 %	9,43 %	8,68 %	63,03 %
	Index	0,00	0,68	0,93	0,74	1,00	0,86	0,69 vs 0,50
Tourists	%	74,00 %	88,46 %	82,55 %	96,00 %	89,94 %	84,26 %	−27,03 %
	Index	0,00	0,66	0,39	1,00	0,72	0,47	0,12 vs 0,77
Workers	%	22,00 %	11,54 %	17,20 %	4,00 %	9,43 %	15,32 %	164,55 %
	Index	1,00	0,42	0,73	0,00	0,30	0,63	0,88 vs 0,75

Among all photos, tourists have a greater presence (84.2 %) compared to employees. Among the photos that have employees, F&B workers represent more than 15.3 % of the sample. It is interesting to note that in none of the images analyzed were residents the focal appearance of the representations. The index also shows the highest concentration of pictures that involve F&B workers in Cyprus (1.00) and Spain (0.73).

On the other hand, interesting differences in subject life cycles and travel groups are shown. There is a very heavy presence of adult tourists (69.11 %) in comparison to children (1.8 %) or Baby Boomers (1 %) and also important differences between destinations for the travel group (families versus couples), with couples being more represented (52.2 %). This fact could be transformed into an opportunity for the accommodation offering of some destinations, paying special attention to children, increasing their exposure, transforming the offer, and positioning themselves in the family segment with "playful" gastronomy and local entertainment experience. Gastronomy indices play a critical role in making these strategic decisions.

Regarding the activities represented, there is a very intense presence of people working in the buffet area rather than enjoying the gastronomy and relaxing. Functional (food in a working context more than hedonic pleasure) and passive pictures are predominant, where intimacy prevails over the social experience and the service perspective over the hedonic experience.

Particularly, 84.3 % of gastronomy images with subjects in a primary role showed a passive activity, obtaining the highest concentration in Malta, Turkey, and Egypt. As presented in Table 4, most of the "passive" activities, included images of people eating and drinking, representing 92.0 %. It is remarkable the little importance given to the images that project people chatting and posing, despite its relevance in a society that is used to creating and seeing this kind of content, especially between young travelers on social networks. Nevertheless, results indicate a significant increase in the pictures involving people chatting and posing.

On the other hand, pictures that include subjects that participate in "active" activities represent 15.6 % of the sample, obtaining the greatest concentration in Cyprus and Spain. In this sense, almost 98 % of images that involved "active" activities portrayed people working. In terms of gender, there is a huge prevalence of male workers, representing 76.1 % of the pictures that involve F&B workers, while the female workers represent 8.8 % of the sample. The greatest concentration of male workers was seen in photographs of lodging located in Egypt (100 %) and Malta (100 %), while Spain and Turkey are the destinations with a higher number of images of female workers. Most photographs that include F&B workers were taken in the buffet area (50.56 %), followed by the hotel dining room (30.5 %) and bars (13.3 %). Table 5 also indicates a slight decrease in the number of photographs in the buffet area and a significant rise in bars and dining rooms between 2005 and 2020.

Regarding the contextualization of gastronomy images analyzed, Table 6 shows an undoubted predominance of F&B areas (89.0 %), followed by the accommodation unit (7.0 %) and the establishment, destination, and complimentary services playing a minor role.

Regarding F&B locations, the projected image is led by hotel dining rooms (78.2 %), Bars (18.0 %), Restaurants (11.7 %), Buffets (9.7 %), and Drinks & Food Foreground (1.3 %). Particularly, facilities with the dining room taking a leading role, followed by bars and buffet pictures, are predominant, while drinks and food play a marginal role. Table 7 also suggests a clear trend towards increasing the use of photographs located in restaurants and the foreground representations. It is also worth noting that there is little presence of "production" sites vs. "consumption" sites. Production sites could also become experience-centers in contrast to pictures of decontextualized food.

5. Conclusions and implications of research

Food has always been essential in tourism as it links people, culture, places, and experiences together (World Tourism Organization, 2017). It represents unique and irreplaceable experiences that can be both simple and complex, local and exotic, authentic and innovative. This study created a gastronomic index through the lens of 25,231 projected images on tourism marketing materials from five countries (Spain, Tukey, Egypt, Malta, and Cyprus) and 5911 lodging resorts over 11 seasons from 2005 to 2020. The study results offered insights for DMOs to strategically promote their gastronomic offerings to attract tourists.

Firstly, the results show that gastronomic offerings were significantly underrepresented in the projected images compared to the expenditures tourists allocate during their travel. Gastronomy-related photographs have higher relevance in the descriptions of the hotels in comparison with the presentation of the actual destination itself. As DMOs were the ones that gathered and promoted the projected images of a destination, these results aligned with existing studies (e.g., Mohamed et al., 2020) indicated that there are opportunities for DMOs to use gastronomic offerings to attract tourists. Gastronomy offerings might have been perceived as a derivative of the destination rather than having their own recognition or identity or importance in the destination. Food offerings might have been taken for granted in tourism marketing practices as tourists do need to eat and drink somewhere, so why bother to promote it? However, the rise of gastronomic tourism as well as tourists' cravings for cultural consumptions, authenticities, and connections remind us that gastronomic offering itself needs to be paid more attention.

Secondly, the social aspects of the gastronomic experience were not well represented so far. Social is one of the critical dimensions in creating a dining experience, especially a memorable one (Cao et al., 2019). Social interactions during dining experiences elicit positive emotions as well as affective commitment (Wang & Lang, 2019). It is important to highlight the social components in certain targeted destinations, where potential tourists can see themselves interact with people through food offerings.

Thirdly, there is also a lack of representation of youth, kids, elders, and family travelers in the projected images. These groups are robust growing sectors among various tourist segmentations, as recent research also has shown increasing interest in various attributes of these groups (e.g., Obrador, 2012). These studies suggest that the needs of food, the

Table 4
Activities.

Item		Cyprus	Egypt	Spain	Malta	Turkey	Total	Var 2005–2020
Active	%	22,00 %	11,54 %	17,45 %	4,00 %	10,69 %	15,66 %	207,94 %
	Index	1,00	0,42	0,75	0,00	0,37	0,65	0,86 vs 0,83
Passive	%	78,00 %	88,46 %	82,55 %	96,00 %	89,31 %	84,34 %	−21,27 %
	Index	0,00	0,58	0,25	1,00	0,63	0,35	0,14 vs 0,83
A. Working	%	100,00 %	100,00 %	98,54 %	100,00 %	88,24 %	97,83 %	−6,25 %
	Index	1,00	1,00	0,88	1,00	0,00	0,82	1 vs 0,94
P. Eating & Drinking	%	94,87 %	97,10 %	90,43 %	95,83 %	92,86 %	92,01 %	−26,57 %
	Index	0,67	1,00	0,00	0,81	0,36	0,24	0,39 vs 0,68
P. Chatting	%	5,13 %	1,45 %	4,78 %	0,00 %	2,86 %	3,94 %	396,24 %
	Index	1,00	0,28	0,93	0,00	0,56	0,77	0,33 vs 0,50
P. Posing	%	0,00 %	0,00 %	2,62 %	0,00 %	4,29 %	2,33 %	872,63 %
	Index	0,00	0,00	0,61	0,00	1,00	0,54	0,80 vs 0,33

Table 5
A. Working in F&B areas (extended).

Item		Cyprus	Egypt	Spain	Malta	Turkey	Total	Var 2005–2020
Buffet	%	9,09 %	27,78 %	60,00 %	100,00 %	20,00 %	50,56 %	−64,00 %
	Index	0,00	0,21	0,56	1,00	0,12	0,46	0,86 vs 0,53
Hotel Dining Room	%	36,36 %	61,11 %	27,41 %	0,00 %	20,00 %	30,56 %	116,00 %
	Index	0,60	1,00	0,45	0,00	0,33	0,50	0,26 vs 0,40
Bar	%	45,45 %	5,56 %	10,37 %	0,00 %	26,67 %	13,33 %	380,00 %
	Index	1,00	0,12	0,23	0,00	0,59	0,29	0,06 vs 0,80
Male	%	90,91 %	100,00 %	70,37 %	100,00 %	86,67 %	76,11 %	−41,40 %
	Index	0,69	1,00	0,00	1,00	0,55	0,19	0,80 vs 0,47
Female	%	9,09 %	0,00 %	10,37 %	0,00 %	6,67 %	8,89 %	620,00 %
	Index	0,88	0,00	1,00	0,00	0,64	0,86	0,80 vs 0,53
Both	%	0,00 %	0,00 %	19,26 %	0,00 %	6,67 %	15,00 %	80,00 %
	Index	0,00	0,00	1,00	0,00	0,35	0,78	0,80 vs 0,80

Table 6
Contextualization.

Item		Cyprus	Egypt	Spain	Malta	Turkey	Total	Var 2005–2020
F&B Areas	%	93,40 %	79,42 %	89,75 %	95,45 %	88,87 %	89,03 %	19,70 %
	Index	0,87	0,00	0,64	1,00	0,59	0,60	0,85 vs 0,85
Accommodation unit	%	4,06 %	10,61 %	7,65 %	1,82 %	4,95 %	7,05 %	−84,54 %
	Index	0,26	1,00	0,66	0,00	0,36	0,59	0,39 vs 0,29
Establishment	%	1,52 %	8,36 %	1,92 %	2,73 %	5,83 %	3,22 %	−57,91 %
	Index	0,00	1,00	0,06	0,18	0,63	0,25	0,18 vs 0,09
Destination	%	0,00 %	0,32 %	0,43 %	0,00 %	0,18 %	0,34 %	–
	Index	0,00	0,74	1,00	0,00	0,41	0,78	0 vs 0,61
Complementary Services	%	1,02 %	1,29 %	0,24 %	0,00 %	0,00 %	0,34 %	–
	Index	0,79	1,00	0,19	0,00	0,00	0,26	0 vs 0,15

Table 7
Contextualization, F&B areas.

Item		Cyprus	Egypt	Spain	Malta	Turkey	Total	Var 2005–2020
Hotel Dining Room	%	51,78 %	54,34 %	44,68 %	71,82 %	51,94 %	48,21 %	3,14 %
	Index	0,26	0,36	0,00	1,00	0,27	0,13	0,31 vs 0,55
Bar	%	21,83 %	14,47 %	19,43 %	11,82 %	14,84 %	18,05 %	10,21 %
	Index	1,00	0,26	0,76	0,00	0,30	0,62	0,74 vs 0,50
Restaurant	%	16,24 %	3,54 %	12,07 %	8,18 %	13,96 %	11,71 %	2228,98 %
	Index	1,00	0,00	0,67	0,37	0,82	0,64	0,43 vs 0,61
Buffet	%	3,05 %	6,43 %	12,60 %	1,82 %	4,77 %	9,71 %	−69,84 %
	Index	0,11	0,43	1,00	0,00	0,27	0,73	0,88 vs 0,86
Drinks & Food Foreground	%	0,51 %	0,64 %	0,96 %	1,82 %	3,36 %	1,35 %	224,25 %
	Index	0,00	0,05	0,16	0,46	1,00	0,30	0,15 vs 0,39

decision-making process, and the types of experience seeking vary greatly among these groups. It is important to develop further understanding toward each group in terms of their food consumption behaviors while traveling.

Furthermore, research has suggested that DMOs could take user-generated content (UGC) into account when selecting projected images due to the increased use of online resources in destination selection (Deng & Li, 2018). It is especially advantageous to take a machine learning and AI approach in selecting the projected images to narrow its gap with perceived images by tourists. This method might be particularly useful in catering to niche tourist segments in finding the "perfect" projected images.

Lastly, the gastronomic activities presented in the projected images tend to focus on the travelers. Tourist destination residents are in a marginal position, missing the opportunities to build a cultural link with the tourists. Photos of gastronomic offerings should focus more on those that enhance their visit intention and offer useful information. Chen and Scovino (2020) found that affective images are more impactful compared to cognitive images. This echoes the first theme where a lack of social interaction among projected images could have also missed the mark on elicit emotion and attractions to destinations from potential visitors. Food as an expression of local culture and identity could also be represented by emphasizing the value of destination residents,

especially in a post-COVID-19 world (Fountain, 2022). Theoretically, the results of the current study show that there appears to be a lack of understanding by destinations and DMOs about signaling theory and how photos and messaging can be used to communicate about destinations (Aureliano-Silva et al., 2021; Spence, 2002). Based on this information, we suggest that DMOs focus on affective photos that cause resonance and stimulate positive emotions from tourists. DMOs could also pay attention to other platforms of pictorial content, such as social media (e.g., Twitter, Instagram, Facebook, Snapchat, TikTok) and user-generated content (UGC) platforms (e.g., TripAdvisor, YouTube). Studies have shown that these platforms play an increasingly important role in travel planning, as travelers carefully examine photos and reviews to inform their decisions (e.g., Ayeh et al., 2013; Litvin et al., 2008).

Previous studies have highlighted the impact of visual content, such as destination images and quality and source of photographs, on tourists' perception forming of a destination and their subsequent travel decision making (e.g., hu et al., 2023). This reflects that more research should be done on guest perceptions of photos. Gender, generation, travel companions, and cultural background also make a difference in how they perceive the projected images and how travel decisions are made. Active context, increasing the presence of activities such as chatting and posing, presents opportunities for hotels and destinations

to differentiate their gastronomy positioning.

This study provides the lodging industry and destination marketing organizations (DMOs) with a useful and simple tool for comparatively evaluating their gastronomy image projected. The results facilitate decision-makers to identify the current gastronomy image and the changes in the image of their lodging properties, their destinations, and those of their main competitors in order to properly design differentiation and positioning strategies to market more effectively.

5.1. Limitations and future research

Although this research has collected longitudinal data from 2005 to 2020, the projected images were only collected in five countries. Future research could extend to other countries and cultures to further understand how gastronomic offerings are portrayed in those destinations. Further research can also investigate the change of projected images of food offerings over different time periods and examine if there is a pattern and how the trend may develop in the future. The depth and breadth of this research could also be expanded by looking at the role of emotions both in the images projecting gastronomy and the evoked emotions by the audience of those pictures, using alternative methodological neuromarketing tools.

CRediT authorship contribution statement

Patricia Picazo: Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization. **Sergio Moreno-Gil:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Investigation, Formal analysis, Conceptualization. **Robin B. DiPietro:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Investigation, Conceptualization. **Forest Ma:** Writing – review & editing, Writing – original draft, Visualization, Conceptualization.

Ethicalapproval

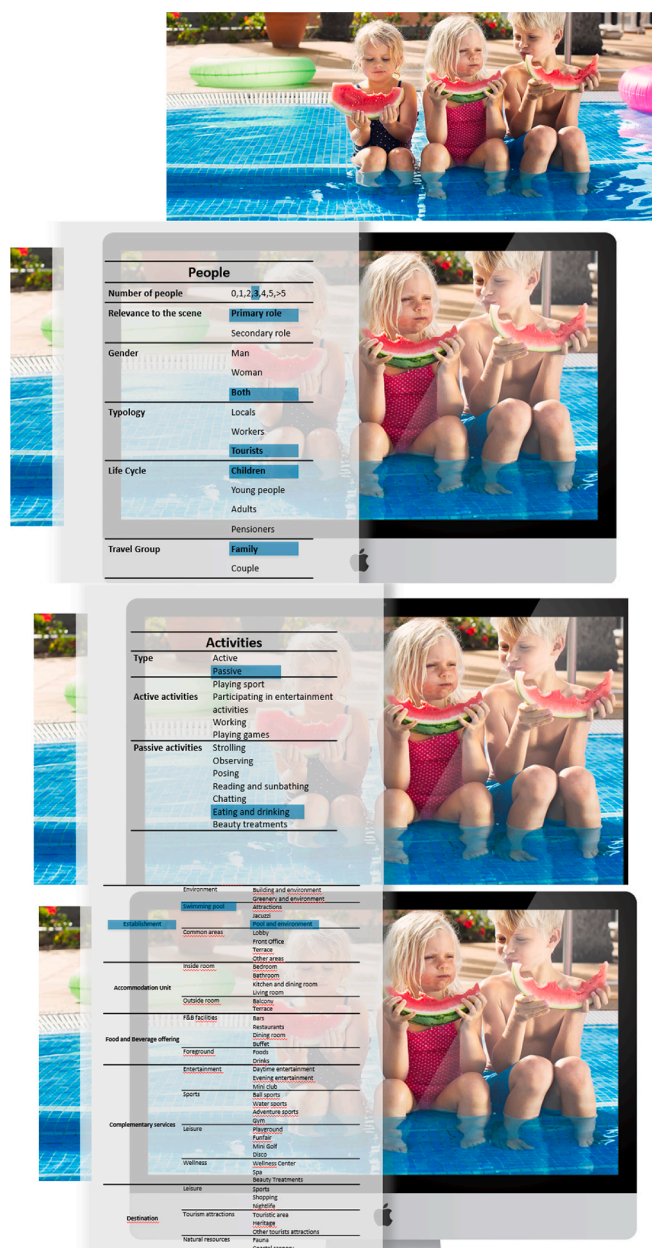Not applicable, as the study did not involve human or animal subjects.

Declaration of competing interest

The authorsdeclareno conflict of interest.

Annex I. Example of photograph categorized following the proposed methodology

People	
Number of people	0,1,2,3,4,5,>5
Relevance to the scene	Primary role
	Secondary role
Gender	Man
	Woman
	Both
Typology	Locals
	Workers
	Tourists
Life Cycle	Children
	Young people
	Adults
	Pensioners
Travel Group	Family
	Couple

Activities	
Type	Active
	Passive
	Playing sport
Active activities	Participating in entertainment activities
	Working
	Playing games
Passive activities	Strolling
	Observing
	Posing
	Reading and sunbathing
	Chatting
	Eating and drinking
	Beauty treatments

Environment		Building and environment
		Greenery and environment
		attractions
	Swimming pool	Jacuzzi
Establishment		Pool and environment
	Common areas	Lobby
		Front Office
		Terrace
		Other areas
	Inside room	Bedroom
		Bathroom
Accommodation Unit		Kitchen and dining room
		Living room
	Outside room	Balcony
		Terrace
	F&B facilities	Bars
		Restaurants
Food and Beverage offering		Dining room
		Buffet
	Foreground	Foods
		Drinks
	Entertainment	Daytime entertainment
		Evening entertainment
		Mini club
	Sports	Ball sports
		Water sports
		Adventure sports
Complementary services	Leisure	Gym
		Playground
		Funfair
		Mini Golf
		Disco
	Wellness	Wellness Center
		Spa
		Beauty Treatments
	Leisure	Sports
		Shopping
		Nightlife
Destination	Tourism attractions	Touristic area
		Heritage
		Other tourists attractions
	Natural resources	Fauna
		Coastal scenery

Data availability

Data will be made available on request.

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